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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/662,192	09/14/2000	Evan George Colgan	JP919990123US1	2399

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EXAMINER

AKKAPEDDI, PRASAD R

ART UNIT PAPER NUMBER

2871

DATE MAILED: 10/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/662,192

Applicant(s)

COLGAN ET AL.

Examiner

Prasad R Akkapeddi

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-17, 20-28, 31-37 is/are rejected.
- 7) ☒ Claim(s) 7,8,18,19,29,30 and 38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,5. 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-3,5-6, 12-14,16-17, 23-25, 27-28, 34-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Sato et al (Sato) (U.S.Patent 6,081,305).

As to claims 1, 12 and 23: Sato discloses a liquid crystal light valve (Fig. 2) comprising: a plurality of light-reflecting films (140, 160, 180) with one or more spaces, a semiconductor substrate (100) connected electrically to the

light-reflecting films, a counter substrate (300) provided on an incident-light side thereof, a liquid crystal (200) disposed in a cell gap formed between the light-reflecting films and the counter substrate, counter electrodes (302) provided on the counter-substrate, an electric circuit formed in the semiconductor substrate (101a, 102), which is configured to apply voltage to the light-reflecting films and the counter electrodes a light-blocking layer (163) formed below the light-reflecting films (140, 160 and 180) a first insulating layer (130) formed between the light-blocking layer and the electric circuit, a second insulating layer (150), a stud (141) which is configured to electrically connect the electric circuit and light-reflecting films, light shields (163) provided on the light-blocking layer formed below the light-reflecting films (180) and a third insulating layer (170) formed between the light shields and the light-reflecting films, wherein at least one of the light shields (180) and the light-blocking layer (163) is configured to block the incident light from the electric circuit.

As to claims 2,3,5,6, 13,14,16,17 and 24,25,27,28: Sato discloses that the light-blocking layer (163) is formed just below the light shields (180) and the electric circuit in the semiconductor substrate has a storage capacitance (1b), and the stud and the light shields and the light blocking layer are formed from Al (Col 14, line 23).

As to claims 34-36: Sato discloses a projection-type liquid crystal display device (Fig. 18) comprising, a light source (700), a projection lens (730) and a light valve (740) and the light valve comprising, a plurality of light-reflecting films

(140, 160, 180) with one or more spaces, a semiconductor substrate (100) connected electrically to the light-reflecting films, a counter substrate (300) provided on an incident-light side thereof, a liquid crystal (200) disposed in a cell gap formed between the light-reflecting films and the counter substrate, counter electrodes (302) provided on the counter-substrate, an electric circuit formed in the semiconductor substrate (101a, 102), which is configured to apply voltage to the light-reflecting films and the counter electrodes a light-blocking layer (163) formed below the light-reflecting films (140, 160 and 180) a first insulating layer (130) formed between the light-blocking layer and the electric circuit, a second insulating layer (150), a stud (141) which is configured to electrically connect the electric circuit and light-reflecting films, light shields ¹⁷¹ (163) provided on the light-blocking layer formed below the light-reflecting films (180) and a third insulating layer (170) formed between the light shields and the light-reflecting films, wherein at least one of the light shields (180) and the light-blocking layer (163) is configured to block the incident light from the electric circuit.

As to claim 37: Sato, in (Col. 19, lines 1-13) briefly describes the method for producing a liquid crystal light valve that has the claimed limitations.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 9-11, 15, 20-22, 26, 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato in view of Kahn (U.S. Patent No. 5,056,895).

a. Although Sato describes a liquid crystal light valve having a storage capacitance and several metal layers and insulating layers, Sato does not explicitly disclose neither the material for the insulating layers nor the need not to have a storage capacitance. Kahn on the other hand, in disclosing a similar light crystal light valve device, discloses the composition of the oxide layers, which is well known in the art (Col. 5, lines 40-43) as SiO₂ or TaO₅ and if the liquid crystal material has a large enough intrinsic RC time constant, then additional storage capacitors are not needed (Cols. 6, lines 67-68 and Col 7, lines 1-2). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the compositions and the storage capacitance requirements as disclosed by Kahn to the liquid crystal valve disclosed by Sato to provide a high resolution, high contrast ratio and a very high brightness projector.

Allowable Subject Matter

2. Claims 7-8, 18-19, 29-30 and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

A search of the prior art did not reveal the specific thickness of 50-1000 Angstroms for the third insulating layer and the light shields being formed

below the inside peripheral portions of the light reflecting films at least 0.2 microns from the ends thereof. Also, the prior art did not reveal the specific sub-steps described in claim 38, such as (a) vi and (a) vii are performed substantially together, and (a) viii and (a) ix are performed substantially together.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 703-305-4767. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William L Sikes can be reached on 703-308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0530.

PRA

October 15, 2002

William L. Sikes

William L. Sikes
Supervisory Patent Examiner
Technology Center 2800